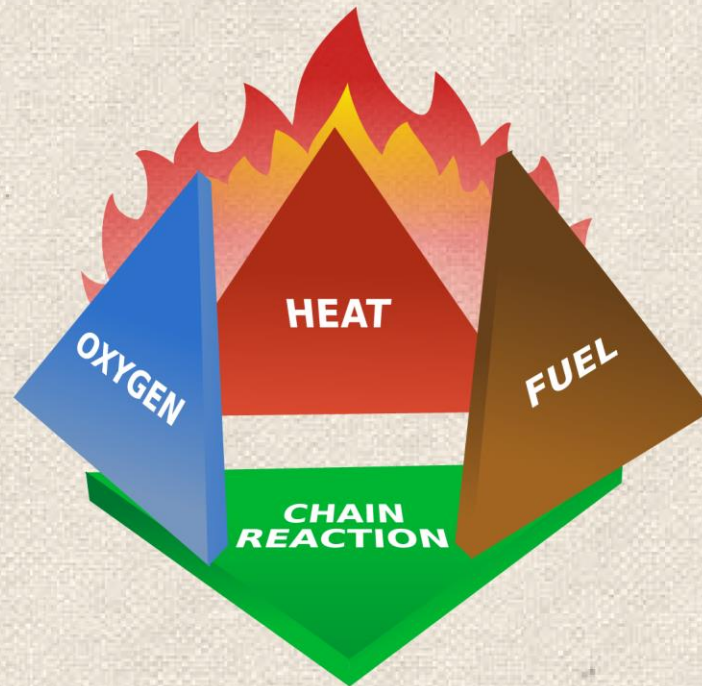




FIRE TETRAHEDRON



The fire tetrahedron represents the addition of a component in the chemical chain reaction, to the three already present in the fire triangle. Once a fire has started, the resulting exothermic chain reaction sustains the fire and allows it to continue until or unless at least one of the elements of the fire is blocked. Foam can be used to deny the fire the oxygen it needs. Water can be used to lower the temperature of the fuel below the ignition point or to remove or disperse the fuel. Halon can be used to remove free radicals and create a barrier of inert gas in a direct attack on the chemical reaction responsible for the fire.

Combustion is the chemical reaction that feeds a fire more heat and allows it to continue. When the fire involves burning metals like lithium, magnesium, titanium, etc. (known as a class-D fire), it becomes even more important to consider the energy release. The metals react faster with water than with oxygen and thereby more energy is released. Putting water on such a fire results in the fire getting hotter or even exploding. Carbon dioxide extinguishers are ineffective against certain metals such as titanium. Therefore, inert agents (e.g. dry sand) must be used to break the chain reaction of metallic combustion. In the same way, as soon as one of the four elements of the tetrahedron is removed, combustion stops.